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**NOTES ON BEES, WITH DESCRIPTIONS OF
NEW SPECIES.**—Third Paper.

BY CHARLES ROBERTSON.

With the exception of a few species from Florida, the following paper is based on the bees occurring in the neighborhood of Carlinville, Ill. It is intended to give descriptions of certain new species, and of the still undescribed sexes of known species, with notes on synonymy, etc., as well as to supplement the work of the author in previous papers by indicating other characters by which the species may be distinguished from those they nearly resemble. This paper will be followed by another on the time of flight and the habits of the local species. The synonymy and arrangement are based on Cresson's Catalogue.

Colletes inaequalis Say, Bost. Jour. i, 391, 1837; *Colletes propinqua* Cress., Proc. Bost. Soc. Nat. Hist. xii, 165, 1868—see Patton, *ibid.* xx, 142; *Colletes canadensis* Cress., *ibid.* 166.

Say says that his species flies in March and April. I have taken it from the 20th of March to the 28th of May, while the species which Cresson has doubtfully referred to *C. inaequalis* I have taken only from the 30th of August to the 7th of October. This early species, which agrees with Say's description of *C. inaequalis*, I have compared with the types of *C. propinqua* in the collection of the American Entomological Society. I have also examined the types of *C. canadensis*. A specimen which Mr. Cresson doubtfully referred to *C. canadensis* is nothing, I think, but *C. inaequalis*.

Colletes compacta Cress.

This species may be most readily distinguished from the other species known to me by its metathorax, which, instead of the usual transverse series of pits, presents a rugose triangular enclosure. It flies in Autumn.

Colletes distincta Cress.

The female closely resembles the male, but is more finely punctured, the vertex and mesoscutum have more black hairs, and the abdominal fasciae are white, the fascia on first segment being continued upon base of second. I have taken this species in Florida.

Colletes thoracica Sm.

This handsome species, taken in Florida, may be readily identified from Smith's description. It was not recognized by Cresson.

Colletes willistonii Rob., Trans. Am. Ent. Soc. xviii, 60.

The ♂ closely resembles the ♀. This is a little smaller than *C. latitarsis* Rob. and may be distinguished by the hind tarsi being much more slender.

Colletes armata Patton, Proc. Bost. Soc. Nat. Hist. xx, 143, 1879; *C. scitula* Patton, *ibid.*; *C. inæqualis* Cress. (nec Say), *ibid.* xii, 166, 1868; *C. spinosa* Rob., Trans. Am. Ent. Soc. xviii, 60, 1891.

Cresson's Catalogue does not give the synonyms of Patton's paper, for which reason I did not know of them, and redescribed this species and the next. All of the males which I have seen have some black or fuscous hairs on the thorax above, which leads me to suspect that the males referred to this species by Patton do not belong to it. I have seen an example of the type of *C. scitula* and regard it as the male of this *Colletes*.

Colletes æstivalis Patton, Proc. Bost. Soc. Nat. Hist. xx, 142-4, 1879; *C. heucherae* Rob., Trans. Am. Ent. Soc. xviii, 61, 1891.

This species is the special pollinator of the flowers of *Heuchera*. Mr. Patton captured it on flowers of *Heuchera americana* in Connecticut, and in Illinois I have taken it abundantly on *H. hispida*.

Colletes eulophi Rob., Trans. Am. Ent. Soc. xviii, 61; *Colletes illinoiensis* Rob., *ibid.* 62.

This species closely resembles *C. americana* Cress., but has the abdomen more strongly punctured and with narrower fasciæ, and there is a well-marked interval between the base of the mandibles and the eyes. In *C. americana* these almost touch, while in *C. eulophi* there is quite an interval, which in the ♂ is subquadrate.

Prosopis modestus Say; *Hylæus modestus* Say, Bost. Jour. i, 392, 1837, Lec. edit. ii, 771; *Prosopis affinis* Sm., Brit. Mus. Cat. Hym. i, 24, 1853; Cress., Proc. Bost. Soc. Nat. Hist. xii, 270.**Prosopis pygmæa** Cress.

The ♀ has the usual spots on the bases of the tibiæ, those on anterior pair extending nearly to tip. There is a variable yellow spot on each side of face, one on tegulæ, on tubercles, and often on apex of clypeus, but some specimens show no yellow markings, except on the tibiæ. I have taken the sexes in copula.

Sphecodes arvensis Patton, Am. Ent. iii, 230, 1880; *Halictus scabrosus* Provancher, Faun. Ent. Can. 700, 1883.

This species, as well as *S. falcifer* Ptn. and *mandibularis* Cress., is common in Illinois.

Halictus foxii; *Halictus gracilis* Rob. (nec Morawitz), Trans. Am. Ent. Soc. xvii, 316.

Dedicated to Mr. Wm. J. Fox.

Halictus macoupinensis; *Halictus 4-maculatus* Rob. (nec Schenk), Trans. Am. Ent. Soc. xvii, 316.

Halictus fasciatus Nylander.

Smith, in Brit. Mus. Cat. Hym. i, 48-9, makes this a synonym of *H. tumblorum* L. and credits *H. flavipes* F. to America. Our species is the *N. fasciatus* Nyl. (*H. flavipes* Thompson).

Halictus stultus Cress.

This species may be distinguished from all of the species of *Halictus* known to me by its abdomen, which is depressed, widest at third segment, first two segments shining, third and fourth opaque and evenly clothed with sparse, closely appressed hairs.

Halictus pilosus Sm.

The ♂ of this species is like the ♀, but less pubescent. The clypeus strongly produced; the flagellum beneath, apex of clypeus, labrum, mandibles, knees, tibiæ at apex and tarsi yellowish testaceous. It resembles ♂ of *H. fasciatus*, but is smaller, legs less yellow, and abdomen without fasciæ, etc.

Halictus zephyrus Sm.

The ♀ is uniformly brassy green and usually smooth and shining, mesothorax sparsely and feebly punctured, disc of metathorax with feeble rugæ at base. The abdomen has appressed ochraceous pubescence on each side of bases of second and third segments and over fourth and fifth. I have taken the sexes in copula.

Halictus nymphæarum; *Halictus palustris* Rob. (nec Morawitz), Trans. Am. Ent. Soc. xvii, 317.

Halictus platyparius ♀.—Head and thorax dull greenish, the abdomen brownish. Face broad, wider between the eyes above than below, closely and finely punctured above, more sparsely punctured below: the clypeus short and broad, not produced; flagellum stout; cheeks broad, strongly produced to an angle below; the flagellum, mandibles, tegulæ and nervures, and legs dull testaceous; prothorax with short lateral angles, mesothorax smooth and shining, finely

and sparsely punctured, disc of metathorax with longitudinal rugæ not reaching apex; abdomen shining, impunctate with very thin pubescence; hind spurs with few teeth. Length 6 mm.

Hab.—Illinois; five specimens. It closely resembles *H. cephalicus*, but is distinguished by its face being broader above than below and the flagellum being less slender, etc.

Augochlora viridula Smith, Brit. Mus. Cat. Hym. i, 81, ♂; *A. lucidula* Smith, *ibid.* 81–82, ♀—see Patton, Bull. U. S. Geo. Surv. v, 366.

Augochlora fervida Smith, Brit. Mus. Cat. Hym. i, 81.

For a long time I have known only the ♀ of this, which I had determined as *A. humeralis* Ptn. Patton's description seems to indicate no difference, except that the male does not have pale tarsi.

Agapostemon viridula F.; *Apis viridula* F., Ent. Syst. ii, 342; *Agapostemon nigricornis* Cress. (nec F.), Cat. Hym. N. A., 309; *A. bicolor* Rob., Trans. Am. Ent. Soc. xx, 148.

In Cresson's Catalogue the synonym of this species is not given under *Agapostemon*, but under *Apis*; so I overlooked it and redescribed the species as *A. bicolor*.

Agapostemon sericea Först.; *Apis sericea* Först., Nov. Spec. Ins. i, 91.

As in the case of the description of *A. tricolor* Lep., nothing can be made out of the description of this insect, except that it is some male *Agapostemon*.

Andrena vicina Smith, Brit. Mus. Cat. Hym. i, 112, ♀; *A. hirticeps* Smith, *ibid.* 116, ♂; *A. bicolor* Rob. (nec F.), Trans. Am. Ent. Soc. xviii, 51.

This is a common and very variable species. In Illinois the common form has the pubescence of the head black, except a little ochraceous about the base of the antennæ and on the vertex; sometimes there is no ochraceous pubescence on head, except a slight indication on the vertex. The thorax is ochraceous above, but sometimes this color extends to the hairs beneath; elsewhere the pubescence is black, but specimens in which the ochraceous predominates sometimes show a pale floccus. I suspect that *A. errans* Sm. is only a variety of this species.

Andrena erythrogaster Ashmead; *Cilissa erythrogaster* Ashmead, Bull. Col. Biological Association i, 6, 1890; *A. perezii* Rob., Trans. Am. Ent. Soc. xviii, 51.

Andrena pruni Rob., Trans. Am. Ent. Soc. xviii, 51.

The male of this species closely resembles that of *A. sayi*. It is distinguished by its somewhat smaller size, clearer wings, the abdo-

men more shining, less pubescent, and the last segment beneath provided with a conspicuous tuft of hair.

Andrena erigeniæ Rob., *ibid.* 52.

The abdomen of the male terminates in a strongly forked process, each division of the process being quite slender and pointed.

Andrena geranii Rob., *ibid.* 54.

This species is often quite blue, but is sometimes quite black, without any metallic reflection.

Andrena pulchella Rob., *ibid.* 57.

The male of this species closely resembles the female. Besides the large spot on each side of the face, which also occurs in the ♀, the clypeus also is yellow, except two spots on the disc, and the anterior margin. The labrum has a strong process, which, from in front, appears strongly bidentate; apex of tibiæ and tarsi yellow testaceous.

Andrena alicie Rob., *ibid.* 57.

This was described from a single female specimen. I now have nine females agreeing with the type. The male agrees with the female, except in characters peculiar to the sex. This is the only *Andrena* known to me in which the female has the clypeus yellow, the same as in the male.

Andrena serotina Rob., *Trans. Am. Ent. Soc.* xx, 148.

The insect described as the male of this species does not belong to it, but is the male of the next.

Andrena platyparia ♀.—Black; head large, slightly broader than thorax; clypeus moderately convex, rather closely and strongly punctured on the sides, apical border somewhat reflexed, with lateral angles prominent; basal process of labrum quite prominent, long, narrowed towards base, or subquadrate and concave in front; third joint of antennæ about equal in length to fourth and fifth together; cheeks strongly and broadly produced behind eyes, bordered by a more or less evident rim; disc of mesothorax with rather shallow, sparse punctures, clothed with thin, pale pubescence; scutellum almost impunctate, shining; disc of metathorax with the enclosure rather strongly reticulated. Wings slightly clouded, nervures testaceous, stigma often with fuscous spot, tegulæ with testaceous spot. Abdomen shining and almost impunctate on first segment, elsewhere with fine, sparse punctures and short, sparse pubescence; segments 2-4 with narrow, white, apical fasciæ, more or less interrupted on second, anal fimbria fulvous. Legs with the pubescence inclining to ochraceous, especially the scopæ, floccus white, apical joints of tarsi ferruginous. Length 8-9 mm.

♂ = *A. serotina* Rob. ♂.

Hab.—Illinois; nineteen female specimens.

Andrena nasonii ♀.—Black; clypeus slightly convex, finely roughened, with numerous shallow punctures; basal process of labrum short, triangular, broadly truncate; third joint of antennæ about the length of fourth and fifth together, lateral depressions of face with the pubescence whitish, cheeks narrow; mesonotum opaque, finely roughened, with sparse punctures, pubescence ochraceous, disc of metathorax with triangular enclosure bordered by a raised line, rather strongly reticulated. Wings hyaline, nervures and stigma pale testaceous, tegulæ mostly testaceous. Legs with pale pubescence, the scopa with rather short hairs. Abdomen depressed, opaque, roughened with close shallow punctures, apical margins of segments slightly and broadly depressed, narrowly testaceous, with narrow whitish fasciæ, interrupted anteriorly, fimbria pale ochraceous. Length 8-9 mm.

Hab.—Illinois; four specimens.

Andrena spiræana ♀.—Black; head broader than thorax; clypeus shining, thinly pubescent, rather closely and strongly punctured, with a median ridge, which is impunctate; basal process of labrum short and broad; third joint of antennæ shorter than next two together, flagellum dull testaceous beneath; mesonotum and scutellum rather closely and strongly punctured, clothed with short, thin, fulvous pubescence, metathorax strongly reticulated, the disc with several short, slightly irregular longitudinal ridges, enclosure poorly defined laterally, but bounded by a sharp ridge at the edge of the truncation. Wings hyaline, nervures and stigma testaceous, the tegulæ dull. Legs dull ferruginous, the pubescence pale fulvous. Abdomen shining, finely and sparsely punctured, the second segment presenting a faint fovea on each side near base; the apical margin depressed for about two-thirds of the segment medially, third and fourth segments depressed more than one-half. apical margins of segments 2-4 with narrow fasciæ of white pubescence, interrupted broadly on second, less so on third; fimbria fulvous. Length 9 mm.

♂.—Resembles the female, third joint of antennæ shorter than fourth. Length 7 mm.

Hab.—Illinois; one male, nineteen female specimens.

Closely resembles *A. rugosa*, but is smaller, more shining, less strongly punctured on thorax and abdomen, mesonotum more thinly pubescent. The males of this group are very hard to distinguish. They can only be readily identified by comparison with the females.

Andrena hippotes ♀.—Black, the middle tarsi and hind tibiæ and tarsi red; clypeus closely, strongly and evenly punctured; basal process of labrum short, broad, emarginate; third joint of flagellum shorter than next two together, disc of mesothorax strongly, not closely punctured, with thin, pale pubescence; enclosure of metathorax strongly rugose, poorly defined laterally, terminating in a sharp edge at truncation. Wings nearly hyaline, nervures and stigma testaceous, tegulæ with a testaceous spot. Legs blackish, apical joints of front tarsi, middle tibiæ at tips, their tarsi, and hind tibiæ and tarsi ferruginous red. Abdomen shining, closely and finely punctured, segments 2-4 depressed to the middle, or a little beyond on second: the same segments with interrupted fasciæ of white pubescence, fimbria pale fulvous; the usual fovea on each extreme side of second segment. Length 8-9 mm.

♂.—More pubescent on clypeus and mesonotum, third joint of flagellum shorter than fourth. Legs more yellow. Length 7-9 mm.

Hab.—Illinois; ten male, thirty-four female specimens.

Panurgus? andrenoides Cr., Trans. Am. Ent. Soc. vii, 62; *P.?* *nevadensis* Cr., ibid. 214.

Some male specimens from here were referred by Mr. Cresson to *P. andrenoides*, others to *P. nevadensis*. It is a common and very variable species. The last ventral segment in the male has its lateral angles reflexed as in *Andrena crategi* ♂. The female is black, clypeus rather strongly punctured on the sides, basal process of labrum short and triangular, mandibles rufous in middle or at tips, flagellum testaceous beneath. Abdomen red, sometimes with a little blackish, or even entirely black, hind tarsi and often the tibiae, pale ferruginous. Length 8-9 mm.

I suspect that this species belongs to Smith's genus *Scrapter*.

Panurgus autumnalis ♀.—Black, clothed with pale pubescence, which is rather short and dense on mesonotum; face finely and densely punctured, except a shining, not depressed, space along the eyes; clypeus short, very transverse, truncate; labrum nearly as large, subquadrate, rounded anteriorly, transversely striate at base; flagellum testaceous beneath towards tip; mesoscutum finely and densely punctured, disc of metathorax flat, finely sculptured. Wings whitish hyaline, nervures and stigma pale, submarginal cells of equal length, outer margin of tegulae dull testaceous. Legs slender, pubescence pale, black, the small tarsal joints, except the last one, pale. Abdomen somewhat shining, almost impunctate, with pale pubescence at apex, apical margins of segments broadly pale testaceous. Length 7-8 mm.

Hab.—Illinois; seven specimens.

Calliopsis rugosus ♀.—Closely resembles *C. mexicanus* Cr., and *C. scaber* Fox, Proc. Cal. Acad. Sci. ser. 2, vol. iv, 115; it differs from the former by its smaller size and the abdomen being bare, except the anal fimbria, which is pale, except at tip of abdomen, where it is fulvous; second submarginal cell narrowed one-half towards marginal; from *C. scaber* it differs in having the clypeus without impressed line, and in the more closely punctured dorsulum, subequal submarginal cells and less pubescent abdomen. Length 7-8 mm.

♂.—This sex differs from that of *C. mexicanus* in its smaller size, and in being less pubescent, also in having the clypeus, a spot on each side of face, the tibiae exteriorly and the basal joints of each tarsus yellow. Length 7 mm.

Hab.—Illinois; twelve female, one male specimens.

Calliopsis asteris ♂.—Black, slightly shining, quite bare, beneath the pubescence is rather long and quite thin, across prothorax and postscutellum and about tubercles there is a close white tomentum. Head coarsely punctured, except above antennae on face, and closely, except on each side of face near eyes; labrum with a subquadrate, concave, shining process; antennae black, third joint

nearly as long as two following together, mesonotum closely and finely punctured, disc of metathorax short, longitudinally striate at base. Wings dusky at apex and in marginal cell, second submarginal cell shorter than first, narrowed one-half towards marginal, receiving first recurrent nervure about one-third from base, the second at apex, or the second uniting with second transverse cubital; nervures and stigma black, tegulae testaceous, except in front. Legs with pale pubescence, the tibial scopa whitish; first segment of abdomen shining, sparsely and finely punctured, the others densely punctured, apical margins of segments depressed and dull testaceous, anal fimbria inclining to fuscous. Length 6-7 mm.

♂.—Resembles the female, the sparse pubescence and tomentum above inclining to ochraceous; clypeus, generally a spot above, a spot on each side of face, process of labrum, middle of mandibles, tubercles usually, knees, anterior tibiae in front and base and apex of others, and tarsi, except two or three apical joints, yellow; clypeus anteriorly and process of labrum with a narrow black edge; third joint of antennae longer than fourth, flagellum sometimes testaceous beneath in the middle, abdomen with segments 2-4 depressed and minutely roughened at base, elsewhere more shining and more sparsely punctured than in female. Length 5-6 mm.

Hab.—Illinois; seven females, twenty-three males. The sexes were taken in copula.

Calliopsis rudbeckiae ♀.—Black, shining, slender, pubescence thin and pale, except on mesothorax above, where it is close and ochraceous; clypeus and sides of face rather coarsely and sparsely punctured, elsewhere more closely and finely punctured; middle of labrum presenting a subquadrate space which is concave, shining, finely striate at base and emarginate apically; mandibles rufous; antennae black, third joint about as long as two following together; mesonotum and scutellum shining, finely and evenly punctured, clothed with rather close pubescence; metathorax bare, shining, disc short, striate basally. Wings subhyaline, second submarginal cell shorter than first, narrowed nearly one-half towards marginal, receiving first recurrent nervure about one-third from base and the second near apex, nervures and stigma dark, tegulae testaceous. Legs blackish, anterior and middle knees with a yellow spot, basal joint of hind tarsi paler, the scopa whitish. Abdomen shining, especially first segment, which is almost impunctate, other segments finely and closely punctured toward base, broad apical margins smooth, piceous, anal fimbriae ochraceous. Length 6 mm.

♂.—Resembles male of preceding, but is distinguished from it, and all other male *Calliopsis* known to me, by its clypeus presenting a broad median depression, which is impunctate, or nearly so. Length 5-8 mm.

Hab.—Illinois; twenty-three females, forty-two males.

Calliopsis labrosus ♀.—Black, shining, thinly pubescent; face with shallow punctures of medium size, rather sparse, except above antennae; labrum presenting a median facet, which is strongly narrowed to an apex, which is truncate or rounded; third joint of antennae nearly as long as two following together, flagellum testaceous beneath, at least the middle joints; mandibles, sometimes the clypeus anteriorly, and the labrum entirely testaceous, the mandibles more

rufous; anterior and middle knees and sometimes tubercles yellow; prothorax and about tubercles with a short ochraceous tomentum; mesonotum nearly bare, with close, rather coarse punctures anteriorly, becoming finer and more sparse posteriorly; disc of metathorax short, irregularly striate at base, smooth and shining. Wings hyaline, or nearly so; second submarginal cell shorter than first, narrowed about one-third towards marginal; nervures testaceous, stigma fuscous, tegulæ testaceous. Legs blackish, scopa white. Abdomen shining, especially the first segment, which is almost impunctate, segments broadly depressed, all except first finely punctured, anal fimbria pale ochraceous. Length 6-7 mm.

♂.—More coarsely and closely punctured; clypeus, a spot above, one on each side of face, labrum, mandibles except tips, knees, anterior tibiæ in front and tarsi, except apical joints, yellow; tegulæ a little darker, middle joints of flagellum testaceous beneath; basal process of labrum slightly emarginate at tip. Length 5-6 mm.

Hab.—Illinois; seven females, two males.

Calliopsis compositarum Rob., Trans. Am. Ent. Soc. xx, 274. ♀.—The male closely resembles the female, the nervures darker; scape and flagellum long; face below, antennæ, labrum, mandibles, except tips, knees, tibiæ, except spot behind anterior pair and on each side of others, and tarsi, except claw joints yellow. Length 5-6 mm.

Hab.—Illinois; sixty-six females, twenty-six males. This species is easily distinguished by its densely punctured mesothorax, the punctures large and shallow.

Nomada affabilis Cr., ♂, Trans. Am. Ent. Soc. vii, 74, 1878; *Nomada vineta* Cr. (nec Say), ♀, Proc. Ent. Soc. Phil. ii, 284, 1863. Female.—Mandibles simple, third joint of antennæ longer than fourth, flagellum dull ferruginous beneath, darker above; mesonotum ferruginous or black, with four yellow or ferruginous lines, large spot on pleura and on each side of metathorax yellow.

♂.—Third joint of antennæ longer than fourth, apical segment of abdomen entire, thorax more black, scape cylindrical, yellow beneath.

This is a vernal species, and flies in the neighborhood of Carlinville from the 18th of April to the 20th of June.

Nomada vineta Say, Bost. Jour. i, 401; Lec., edit. ii, 778, 1837.

I have four females of this species which agree well with Say's description. It is a little smaller than preceding, less strongly punctured, more black, less pubescent, face below antennæ ferruginous, orbits yellow, third joint of antennæ longer than fourth, flagellum dusky in the middle, mesonotum black, with a narrow ferruginous margin over tegulæ, in one specimen with an indication of two median ferruginous lines; otherwise resembling preceding.

The male closely resembles female, so much so that there can be no doubt to one having both sexes before him; scape club-shaped, rounded above, of same color as flagellum, third joint of latter longer than fourth, apical segment of abdomen entire.

I think the male described by Say does not belong here. This is an autumnal species, and in my neighborhood flies from September 12 to 26.

The two preceding species of *Nomada* resemble *N. superba* in having the third joint of antennæ longer than fourth, and the apical segment of the abdomen in the male entire, not bifid as in many other species.

Among specimens which I originally referred to *N. luteola* Lep., I find a number of individuals which indicate a distinct, though closely allied species. The ornaments are very similar, but the structural characters of antennæ and metathorax are quite different. The following descriptions indicate the more important distinctions.

Nomada luteola ♀.—Third joint of antennæ shorter than fifth and nearly one-half shorter than fourth, enclosure of metathorax roughened at base, minutely roughened beyond, large subquadrate spot on each side of metathorax extending into enclosure.

♂.—Antennæ with joints cylindrical, not denticulate, third joint one-half, or even less, as long as fourth, enclosure of metathorax roughened at base, minutely so beyond.

Nomada luteoloides ♀.—Third joint of antennæ shorter than fourth, the latter only a little longer than fifth, enclosure of metathorax rather strongly rugose throughout, spot on each side hardly subquadrate and not encroaching on enclosure.

♂.—Antennæ submoniliform, joints 7–10 each with an evident denticle beneath near apex, third joint shorter than fourth, but not greatly so, insect black, with yellow ornaments.

Hab.—Illinois; two females, eight males.

Nomada articulata Sm., Brit. Mus. Cat. Hym. ii. 248; nec. Cr. Proc. Ent. Soc. Phil. ii, 297.

This species resembles the male of preceding. The ornaments are ferruginous, except those of head and abdomen and a spot on pleura, which are yellow; antennæ more moniliform, the denticles beneath joints of flagellum more evident, fourth joint a little longer than third or fifth, which are subequal.

Nomada americana Kly., Faun. Bor.-Am. iv, 269, 1837; *N. bisignata* var. Say, Bost. Journ. i, 402, 1837; *N. valida* Sm., Brit. Mus. Cat. Hym. ii, 246, 1854; *N. annulata* Sm., ibid. 248, ♂ (nec ♀); *N. articulata* Cr. (nec Sm.), Proc. Ent. Soc. Phil. ii, 297, 1863; *N. incerta* Cr., ibid. 309.

Osmia bucephala Cr., Proc. Ent. Soc. Phil. iii, 17, ♀; *O. latitarsis* Cr., ibid. 20, ♂.

Osmia albiventris Cr., Proc. Ent. Soc. Phil. iii, 31, ♂ ♀; *O. rustica* Cr., ibid. 37, ♂.

Megachile 6-dentata ♂.—Black, robust, with abundant pubescence, which is ochraceous above and white beneath, face densely pubescent, that on clypeus white, on face above ochraceous; mandibles and antennæ black, vertex shining, with median sized, close, shallow punctures, mesonotum opaque, more densely and finely punctured, the pubescence rather short and thin, but not with any admixture of black. Wings hyaline, apical margin faintly dusky, nervures dark, tegulæ testaceous. Legs dull ferruginous, anterior femora and tibiæ ferruginous within, coxal spines nearly concealed by pubescence. Abdomen shining, rather coarsely punctured, especially towards apex, first segment widely excavated at base, disc in middle quite short, the segment with long ochraceous pubescence: remaining segments with short, thin, ochraceous pubescence, except on apical margins of segments 2-4 and basal margins of 4-6, where it is dense and depressed; sixth segment with the usual elevation, which, however, is unusually prominent, narrow and deeply and roundly notched, so that it appears like two large spines and exposes to view two prominent spines on each side of the apical margin, beyond these on the seventh segment appears a conspicuous elevation, which is itself bidentate at apex. Length 11 mm.

Hab.—Illinois; one male.

Megachile floridana ♂.—Black, robust, vertex and abdomen somewhat shining, pubescence beneath rather long and white, on the face dense and with a tinge of yellowish, on the vertex, mesonotum and discs of abdominal segments, except first and sixth, it is black; mandibles large, black, flagellum dull testaceous beneath, mesonotum more closely punctured than vertex or abdomen. Wings subhyaline, with a purplish reflection, apical margin dusky, nervures dark, tegulæ black; coxal spines conspicuous, flattened. Legs black, anterior femora and tibiæ within, and apex of tibiæ yellow; tarsi white and with a dense brush of white pubescence posteriorly, the joints strongly flattened, but not otherwise greatly modified, first joint widens to apex, second about as wide as apex of first, from which the tarsus narrows to the claw joint, middle and hind tarsi pale yellowish anteriorly, the middle tarsi strongly ciliate posteriorly, all the claws honey-yellow with dark tips; basal segment of abdomen strongly excavated, the disc not unusually narrow and clothed with long pale pubescence, apical margins of segments 2-5 with fasciæ of pale pubescence much wider on sides; elevation of sixth segment prominent, not deeply notched in the single specimen before me; the extreme edges of this segment presents on each side a small inconspicuous spine, and a rounded carinate elevation further inward. Length 12 mm.

Hab.—Florida; one male.

Ceratina tejonensis Cr., Proc. Ent. Soc. Phil. ii, 390, ♂.

This was described from a California specimen, but in Cresson's Catalogue it is credited to Nevada, and it was found by Provancher in Canada. It is common in Illinois. I have thirty-five specimens; it is quite as common as males of *C. dupla*, and I have taken it from March 21 to September 23. I find no difference from males of *C. dupla*, except in structure of hind femora, and this does not present any intermediate forms. The trouble is that I do not find any female for it, and I suspect that it is a dimorphic male of *C. dupla*, or that its female cannot be distinguished from that species. I think it will be found wherever *C. dupla* occurs.

Synhalonia frater Cr.; *Melissodes frater* Cr., Proc. Acad. Nat. Sci. Phil. 1878, 195, ♂; *Synhalonia frater* Patton, Bull. U. S. Geol. Surv. v, 474; *Melissodes speciosa* Cr., Proc. Acad. Nat. Sci. Phil. 1878, 198, ♀; *Melissodes dilecta* Cr. ibid. 199, ♂.

This is a common species in Illinois. I have often taken the sexes in copula. I have seen the types of *S. frater* in the collection of the American Entomological Society. They are worn and faded specimens.

Synhalonia belfragei Cr.; *Melissodes belfragei* Cr., Trans. Am. Ent. Soc. iv, 278, ♀; *Melissodes honesta* Cr., ibid. 279, ♂; *Synhalonia honesta* Patton, Bull. U. S. Geol. Surv. v, 474, ♂.

This is also common in Illinois. I have taken the sexes in copula.

Synhalonia atriventris Sm.; *Melissodes atriventris* Sm., Brit. Mus. Cat. Hym. ii, 310, 1854, ♂; *Synhalonia atriventris* Cr., Cat. Hym. N. A., 305, ♂; *Melissodes dubitata* Cr., Proc. Acad. Nat. Sci. Phil. 1878, 194, ♀.

Synhalonia nigripes Sm.; *Melissodes nigripes* Sm., Brit. Mus. Cat. Hym. ii, 311, 1854, ♀.

Melissodes illinoensis ♀.—Black; clypeus finely roughened, closely punctured with rather coarse, shallow punctures, except a median elevated line, apex ferruginous; labrum yellow, with dense pale pubescence; mandibles honey-yellow in the middle, with a yellow streak at apex; antennæ black, tip of scape and second joint ferruginous, third joint black, a little longer than next two together; remaining joints ferruginous, darker above; vertex shining, naked and feebly punctured; sides of face and cheeks beneath with white pubescence, occiput above with ochraceous pubescence; mesonotum and scutellum closely punctured, hardly shining, pubescence rather short and ochraceous, except on the disc and edge of scutellum, where it is fuscous. Wings hyaline, nervures and tegulae testaceous; submarginal cells of about equal length, third narrowed one-

half above. Legs blackish, the pubescence ochraceous, apical joints of tarsi ferruginous, scopa whitish. Abdomen opaque, first segment with ochraceous pubescence at base and on sides, apex rather broadly pale testaceous, basal margin of second with a narrow fascia of appressed ochraceous pubescence, broad apical margins of segments 2-4 with dense, appressed, white fasciæ, pubescence of fifth and sixth segments black or fuscous, beneath the abdomen has dense, ochraceous pubescence. Length 12 mm.

♂.—Resembles the female, the pubescence being longer and thinner, tegulæ and nervures sometimes darker, segments 2-4 of abdomen with margins sometimes more evidently testaceous, fascia at base of second segment white, fifth segment also with a white fascia, and sixth with pubescence sometimes black, sometimes pale; clypeus, labrum and mandibles at base pale yellow, the latter at apex with an orange-yellow streak; third joint of antennæ as long, or twice as long, as second, fourth longest of all, flagellum fulvous beneath, apex of tibiæ and the tarsi ferruginous, or sometimes the knees and the tibiæ and tarsi entirely ferruginous. Length 11-12 mm.

Hab.—Illinois; one female, three males.

Melissodes pallida ♀.—Black, clothed with pale pubescence, which inclines to ochraceous on the thorax above; face rather closely pubescent, clypeus closely and strongly punctured, mandibles rufous in middle, with a yellow streak at apex, antennæ black, third joint about equaling next two together, flagellum dull testaceous beneath. Thorax above densely pubescent, except on disc of mesonotum and scutellum, more sparsely punctured on former. Wings subhyaline, second submarginal cell a little smaller than first, third narrowing one-half above, nervures dull testaceous, tegulæ piceous. Legs black, apical joints of tarsi ferruginous; pubescence pale ochraceous, becoming fuscous on apex of tibiæ and tarsi, scopa pale, on the basal joint of hind tarsi within it is black. Abdomen opaque, basal segment with pale pubescence at base and laterally, base of second and broad apical margins of segments 2-4 with appressed white pubescence, segments 5 and 6 with black pubescence, the abdomen beneath has the pubescence fuscous, paler towards apex. Length 14 mm.

Hab.—Illinois; one female. This looks like the female of *Synhalonia frater*, but is a little smaller, and has paler legs, etc.

Melissodes nivea ♀.—This species closely resembles *M. perplexa* Cr., but is distinguished by the pubescence being longer, more dense and more whitish; the anterior margin of occiput above with few fuscous hairs, mesothorax with dense cinereous pubescence, except about bare space on posterior margin of mesonotum and scutellum, where it is slightly fuscous. Wings whitish hyaline, the nervures testaceous. Legs with pale pubescence, except sometimes on anterior tarsi, where it is tinged with fuscous, scopa white; first segment of abdomen with posterior margin pale testaceous, the fasciæ on segments 2-4 more broad and white than in *M. perplexa*. Length 10 mm.

Hab.—Illinois; seven females.

Anthophora ursina Cr., Trans. Am. Ent. Soc. ii, 291, ♂.

This species is common in Illinois. The female bears a very strong resemblance to *Habropoda floridana* Sm., but is distinguished by the venation. It is distinguished from *A. abrupta* Say by its larger size, the first segment of abdomen having more ochraceous pubescence, and the ochraceous color of thorax not being continued down the sides beyond the middle. The type of the male is faded, fresh specimens having the pubescence of thorax more ochraceous.

